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Authors
Bender, Jeremiah
Stratton, Lisa

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UC SANTA BARBARA
Cheadle Center for Biodiversity & Ecological Restoration

Restoration Register

March 2025



Burrowing owl on the NCOS Mesa. Photo by Susan Cook.

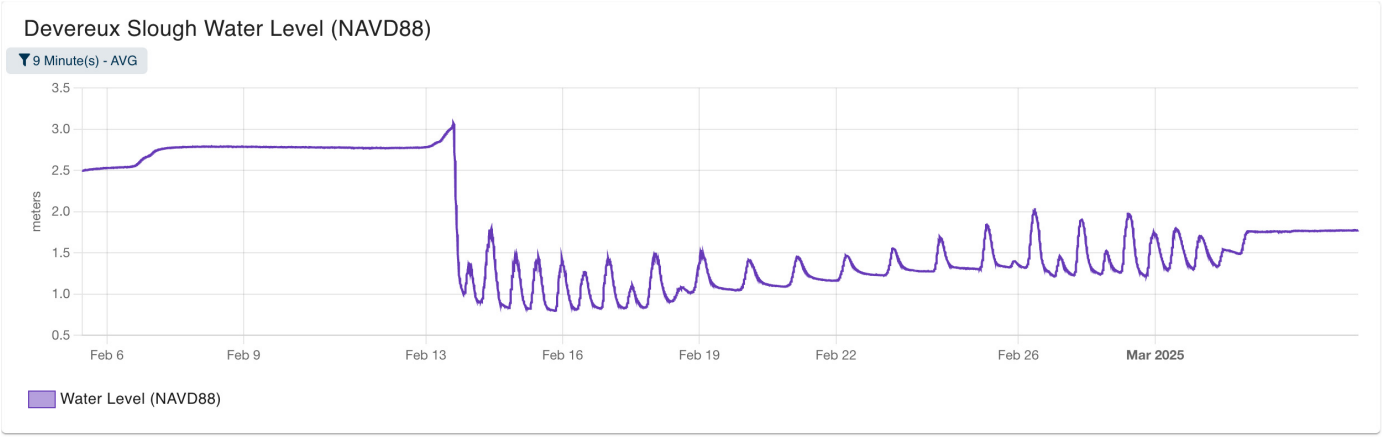
Updates

Devereux Slough Breach



Eastern arm of the NCOS salt marsh on February 12th.

The storm system that passed through the Santa Barbara area from February 12–14th deposited approximately 2.22 inches of rain on the Devereux Slough system. This resulted in a water level rise of approximately one foot, leading to a breach at a maximum water level of 10.08 feet on February 13th.



This graph pulled from the real-time water level monitoring station in the Devereux Slough shows the breach event on February 14th, resulting two week period of tidal influence, and the eventual reformation of the beach berm on March 3rd.

This storm and the resulting high water levels in the slough illustrate how the increased wetland capacity of the restored system at NCOS provides flood protection while expanding and diversifying the wetland through an increased tidal prism. Water level fluctuations in the slough create a dynamic habitat of

exposed mudflats and open water.



View of the main slough channel with high water levels on February 12th.



Devereux Creek and seasonal ponds on February 12th.



Video showing NCOS during the storm on February 13th.



Video showing breach event on February 13th.





Tidal influence at NCOS on February 14th, the day after the breach. The image on the left shows the high tide at 10am, with resulting water level of 5.87 feet, while the right image shows the low tide at 4pm with a water level of 2.76 feet.

An open mouth and tidal influence benefit multiple endangered species inhabiting the Devereux slough. Following the breach, endangered Tidewater Gobies have an opportunity to enter the system. This small, finger-length fish is known to "wink" in and out of habitats depending on the frequency of mouth openings, as well as salinity and water levels in lagoons. Tidewater Gobies are less commonly found in fully tidal systems, where they may be more vulnerable to predation by larger fish. They have been intermittently observed in Devereux Slough since 2005, when they were first documented in the area.



Tidewater goby (*Eucyclogobius newberryi*) found during the 2024 fish survey.

The tidal pulses also transport seeds of various plant species, including those from the recently established populations of the endangered Salt Marsh Bird's Beak (*Cordylanthus maritimus ssp. maritimus*), Ventura Marsh Milk-Vetch (*Astragalus pycnostachys var. lanosissimus*), and Verrucose Sea Purslane (*Sesuvium ventricosum*).



Tidal influence helps the seed dispersal of Salt Marsh Bird's Beak (*Cordylanthus maritimus ssp. maritimus*).

Tidal influence continued for two weeks until March 3rd, when real-time water level monitoring indicated a loss of tidal flow, signaling the formation of a rebuilt beach berm. We're excited to see if the coming storms will result in another breach, or whether the berm has rebuilt enough to hold the incoming flow. Stay tuned for more hydrology updates!

Ellwood Marine Terminal Restoration Project



Aerial view of the EMT project site.

The demolition of all tanks and surface buildings and pipes has been completed and contractors are now in the early stages of the remediation phase of the project, which involves sampling soils beneath excavated pipelines and within the ballast pond in collaboration with the Regional Water Quality Control Board and APCD on the main site. We anticipate resolving these issues and being able to move forward with grading later this year.

Meanwhile, the Cheadle Center and Your Children's Trees have begun planting oaks in the dying Eucalyptus windrow on the border with Ellwood Mesa. For more information on the project and to view the latest public access plan, visit the EMT webpage on the Cheadle Center website.

We want to hear from you!



We're interested in learning what community members value about North Campus Open Space and what sparks their curiosity. Share your thoughts by completing this brief, two-question survey - link here.

Feature Story

Outdoor Education at the North Campus Open Space



Students from Isla Vista Elementary School learn about wetland plant adaptations in the NCOS salt marsh.

The North Campus Open Space serves not only as a sanctuary for the diverse array of animals and plants that inhabit the restored wetland, but also as a living classroom for UCSB classes, researchers, and various environmental education programs for all ages. Pre-k, elementary, middle and high school groups engaging in hands-on learning experiences are a common sight at the preserve. "The connection between NCOS and the school system is one of the most important ones I've been lucky enough to be a part of in my classroom" said Krista Luchii of Isla Vista Elementary. The proximity of NCOS to nearby schools such as IV Elementary and the Orfalea Family Children's Center (OFCC) make it an ideal field trip location within walking distance for the students.



Children from the Orfalea Family Children's Center on their way to NCOS.

During a walk to the water with her pre-K class, Natasha Gavriloff, a teacher at OFCC, observed, "They notice everything around them—the bugs, the textures of the plants. They're getting a lot of sensory information out here, which is critical at this age." Education/Outreach Coordinator Andy Lanes and UCSB undergraduate education interns lead these excursions three days a week, incorporating place-based lessons and utilizing Cheadle Center teaching collections to enhance the experiences.



A group from the Orfalea Family Children's Center visiting NCOS.

During Winter quarter, UCSB's Environmental Studies 191: Nature and Science Education Practicum students are trained to create new curriculum and to lead activities at NCOS. Three 5th grade classrooms at IV Elementary receive two field trips each, mentored by UCSB undergraduates. During these visits, the 5th graders rotate through a series of stations where they learn about the ecology of the area and observe plants and wildlife.



Students from Isla Vista Elementary School use magnifying glasses to examine California bulrush (*Schoenoplectus californicus*).



Students from Isla Vista Elementary School observing the freshwater marsh plants near near the NCOS Visitor Plaza.

With the assistance of the NatureTrack Foundation, students from farther away also have the opportunity to visit NCOS. The foundation is dedicated to introducing children and students to the outdoors, fostering curiosity about the natural world. Each year, they organize around five trips to NCOS, bringing approximately fifty students per visit. Program Director Abby Pickens shared some memorable moments from these visits: “The students love spotting animal tracks in the sand when water levels are low. On our last trip, we saw Snowy Egrets feeding, and the students were fascinated. Walking through different terrains and out to the ocean is always an exciting experience for them.” So far this year, NCOS and NatureTrack have hosted second graders from Peabody Elementary, with plans to welcome a third-grade group from Mountain View Elementary as well.



Peabody Elementary School 2nd graders inspect California bush sunflower (*Encelia californica*) with hand lenses.



Peabody School 2nd graders on the NCOS Marsh Trail.

NCOS also provides UCSB students with hands-on experience in ecological restoration via ES 95: Introduction to Ecological Restoration Field Skills. Students learn about ecological restoration principles and spend a week with Darwin Richardson, the NCOS Project Manager. Darwin introduces them to the site's development plans using blueprints and aerial photographs before leading them into the field to observe the restored ecosystem firsthand. After this introduction to the site, students return to learn more about NCOS in the Hydrology Monitoring, Birding, and Field Work weeks of the class. Many students from this course go on to work at NCOS as interns and student employees. Some even take their learning further, developing independent research projects at the site.

The research opportunities at NCOS have made it a key site for a UCSB class of budding soil ecologists. Under the direction of Professor Iris Holzer, students are conducting in-depth investigations into the relationship between plant survivorship and soil quality. This analysis was coupled with studies on plant stress by students using a plant physiology tool known as a "Pressure Bomb" in Professor Lee Anderegg's Plant Physiology class.



Led by Professor Iris Holzer, UCSB undergraduate students collect soil cores with an Auger on the NCOS Mesa slopes.

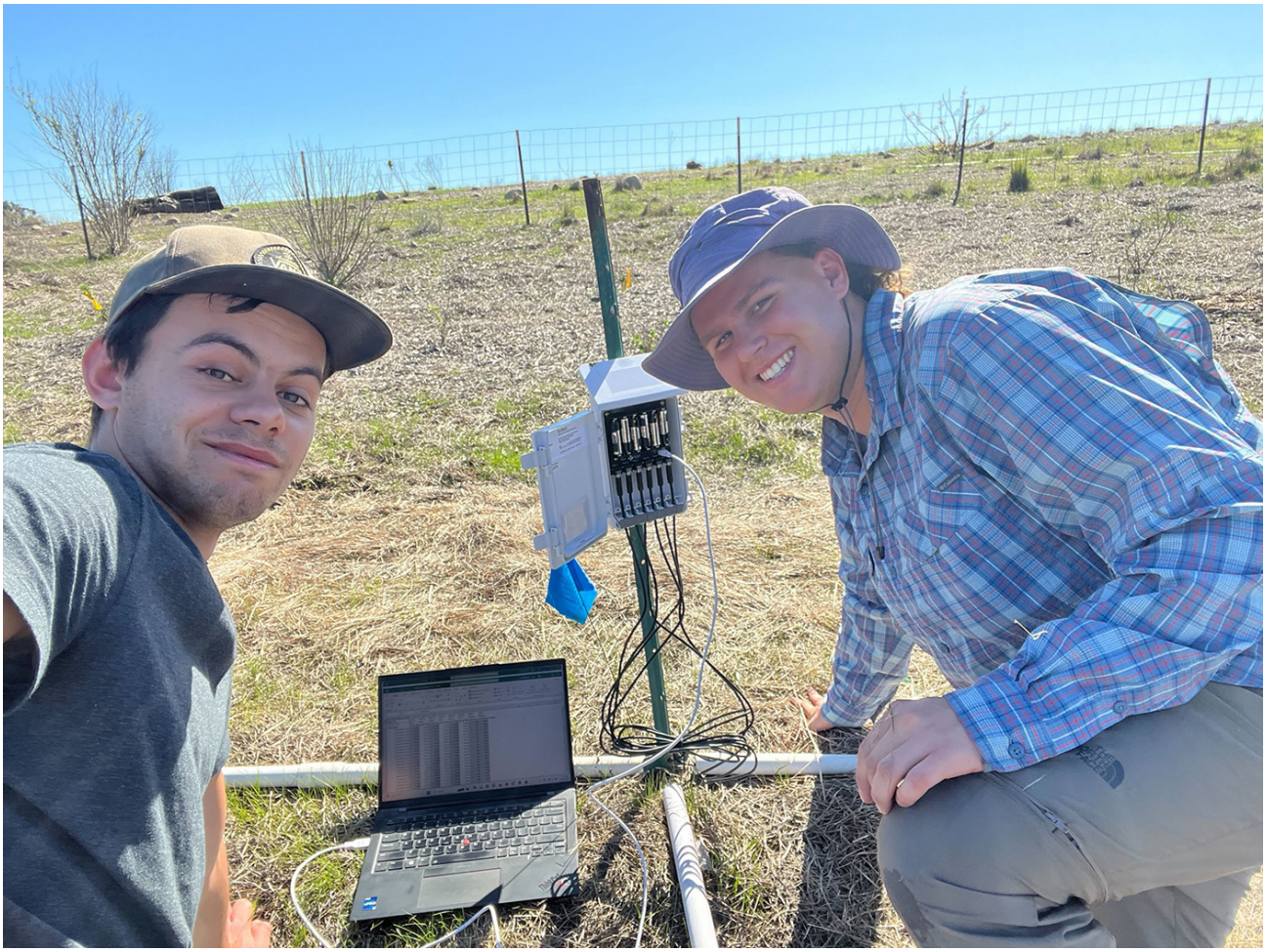


UCSB undergraduate students analyzing soil cores.



UCSB undergraduate students from Professor Lee Anderegg's Plant Physiology class.

The information gained in these classes will be combined with research conducted by two UCSB research interns, Jacob and Zephyr, who are mapping plants and monitoring soil moisture over time. “The concern is that *Artemisia californica* and other plants on the north slope of NCOS are struggling more than expected, and we’re trying to determine whether over saturation is a factor,” explains Jacob, a second-year hydrology student. “It’s nice to do hands-on work, to be out in the field rather than just in a classroom - the environment here is constantly changing,” Zephyr adds.



UCSB undergraduate students Jacob Pike and Zephyr Moss monitor soil moisture on the NCOS Mesa sloes.

Ensuring the future of outdoor education doesn't happen automatically—it requires ongoing mentorship, coordination, and leadership. The Cheadle Center is seeking both current-use and endowment funding to sustain active site management and expand learning opportunities for the entire community. Continued investment in these programs will help NCOS remain a thriving hub for education, research, and ecological restoration. You can follow this link to donate and select "North Campus Open Space Restoration" as the area of support.

All school groups, clubs, after school programs, etc. are invited to visit NCOS. Please email ncos@ccber.ucsb.edu to schedule an official field trip.

Volunteer Opportunities

"Second Saturdays" at NCOS

April 12th, 9:00 - 12:00

Please RSVP to ncos@ccber.ucsb.edu







Help us restore and create NCOS with plants and more! Meet at 6969 Whittier Drive at 9am. Bring water, sunscreen, and wear a hat, clothes and shoes that are suitable for outdoor work.

Thursdays - Greenhouse Associates

Thursdays 9:00 - 12:00

Come help transplant seedlings of native plants with the CCBER team. To join, please send an email to ncos@ccber.ucsb.edu.

Nature Guide Tour

April 19th, 9:30 - 11:00

Please RSVP to ncos@ccber.ucsb.edu

Come take a walk around NCOS and learn about native plants and animals with a trained Nature Guide.

Community Photos

We are interested in any observations of wildlife activity on NCOS, as well as plants and landscapes. Please send your observations, with or without photos, to ncos@ccber.ucsb.edu. Thank you!



This Mountain Bluebird was spotted at NCOS on January 30th. Mountain Bluebirds breed in open areas with short grasses, shrubs, and trees, at elevations up to 12,500 feet. They prefer prairies, meadows, sagebrush flats, alpine

hillsides, and recently burned or clearcut areas. Nesting sites include cavities or nest boxes facing away from roads. In winter, they move to lower elevations, favoring meadows, prairies, grasslands, juniper woodlands, and agricultural areas while avoiding arid deserts. Paul Lehman, author of *The Birds of Santa Barbara County*, describes it as "a very rare visitor along the South Coast". Photo by Adrian O'Loghlen.



The Blue-gray Gnatcatcher is the northernmost species of gnatcatcher and the only one that is truly migratory. Most other members of its genus are year-round residents of Central and South America. This individual was seen at the North Campus Open Space. Photo by Daniel Forseth.



Say's Phoebe at the North Campus Open Space. These slender flycatchers have been in the U.S. for a long time - paleontologists discovered Say's Phoebe fossils in California dating back to about 400,000 years ago. Photo by Daniel Forseth.



Prairie Falcon at NCOS. These fairly large falcons breed in open western landscapes with cliffs for nesting, including alpine areas up to 11,000 feet. They favor grasslands, shrubsteppe desert, areas of mixed shrubs and grasslands, or alpine tundra with abundant prey like ground squirrels and pikas. In winter, they migrate to the Great Plains and Great Basin, hunting Horned Larks, Western Meadowlarks, and European Starlings in grasslands, croplands, and feedlots. Photo by Steve Hovey on 1/17/25.



Hooded Merganser at the North Campus Open Space. Unlike dabbling ducks, Hooded Mergansers swim low in the water. Their legs are positioned far back on their bodies, aiding in diving but making them clumsy on land. To take flight, they run across the water and fly with rapid wingbeats, only gliding just before landing, where they skid to a stop on the water. Photo by Jeremiah Bender.



Great-blue Heron with a recently caught mullet. Great Blue Herons are opportunistic hunters, feeding on nearly anything within striking distance, including fish, amphibians, reptiles, small mammals, insects, and even other birds. They capture smaller prey with their strong mandibles, while larger fish are impaled with their sharp, dagger-like bills. Before swallowing, they often shake their catch to break or relax sharp spines. This photo was taken in the eastern NCOS salt marsh shortly after the breach event on February 13th. Photo by Jeremiah Bender.



American Wigeon dabbling in one of the small pools left on the periphery of the slough channel following the breach event. These compact ducks consume more plant matter than any other dabbling duck, thanks to their short, goose-like bill. Its compact shape allows for greater force at the tip, enabling them to easily pluck vegetation from fields and lawns. Photo by Jeremiah Bender.



Ruby-Crowned Kinglets feed on spiders, pseudoscorpions, and various insects such as aphids, wasps, ants, and bark beetles. They typically forage high in tree canopies, hovering and pecking to extract insects from leaves and branches. This individual was seen near Whittier Pond at NCOS. Photo by Jeremiah Bender.

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For more information on the North Campus Open Space Restoration Project, Click here, or email ncos@ccber.ucsb.edu

To support our work click here

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Our mailing address is:
Cheadle Center for Biodiversity and Ecological Restoration
Bldg 578 Harder South
UCSB, MC 9615
Santa Barbara, CA 93106

NORTH CAMPUS OPEN SPACE

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